

What is Claimed is:

1. A pullhead/reamer for a directional drilling process comprising:
a first end for mating with a mandrel;
5 a second end;
a set of struts, connecting said first and said second ends, defining a plurality of open ports therebetween, said set of struts comprising a set of teeth on its outer surface for displacing ground during said directional drilling process; and
a set of slurry jets; for receiving and distributing a drilling fluid during said
10 directional drilling process.
2. The pullhead of Claim 1 wherein said first end comprises a set of teeth in its outer surface for displacing ground during said directional drilling process.
- 15 3. The pullhead of Claim 1 wherein said second end comprises a set of teeth in its outer surface for displacing ground during said directional drilling process.
4. The pullhead of Claim 1 wherein said first end comprises screw means for attaching said pullhead to said mandrel.
- 20 5. The pullhead of Claim 1 wherein said circumference of said first end is smaller than the circumference of said second end.
6. The pullhead of Claim 1 wherein said second end comprises means for
25 attachment to a steel connect.
7. The pullhead of Claim 1 wherein said second end further comprises means for reducing wear and tear between said second end and said steel connect during said directional drilling process.
- 30 8. The pullhead of Claim 1 wherein said second end comprises means for attachment with a pipe.
9. A method of directional drilling to produce an underground hole for laying of a pipe
35 comprising the steps of:
rotating a pullhead to displace mud to produce said underground hole;

mixing said mud with a drilling fluid to create a slurry;
guiding said slurry to an interior of said pipe causing said slurry to travel along
said interior of said pipe to an opposite end of said pipe.

5 10. The method of Claim 9 further comprising the step of removing said slurry from
said opposite end of said pipe.

11. The method of Claim 9 wherein said step of guiding comprises the steps of:
pressurizing said slurry to enter said pullhead; and
10 funnelling said slurry towards said pipe.

12. Apparatus for directional drilling of an underground hole for laying of a pipe
comprising:
a motor;
15 a mandrel, having a first end connected to said motor and a second end;
a pullhead, connected at a first end to said second end of said mandrel and a
second end connected to said pipe;
said pullhead comprising:
a first end, for mating with a mandrel;
20 a second end;
a set of struts, connecting said first and said second ends defining a
plurality of open ports therebetween, said set of struts comprising a set of teeth on its
outer surface for displacing ground during said directional drilling process; and
a set of slurry jets, for receiving and distributing a drilling fluid during said
25 directional drilling process.

13. The apparatus of Claim 12 further comprising:
a reservoir containing said drilling fluid; and
a pump for delivering said drilling fluid from said reservoir to said set of slurry jets
30 in said pullhead.

14. The apparatus of Claim 12 wherein said drilling fluid is bentonite.

15. The apparatus of Claim 12 further comprising a steel connect attached to said
35 mandrel between said second end of said pullhead and said pipe.

16. The apparatus of Claim 15 wherein said steel connect is attached to said mandrel via a bearing assembly.
17. The apparatus for Claim 16 wherein said bearing assembly comprises;
5 a set of bearings attached to said mandrel; and
a set of supports, attached at one end to one of said set of bearings and at a second end to said steel support.
18. The apparatus of Claim 17 wherein said second end of said supports are welded
10 to said steel support.
19. The apparatus of Claim 15 wherein said steel connect is slotted into said second end of said pullhead.
- 15 20. The apparatus of Claim 19 further comprising means for reducing the wear and tear between said second end and said steel connect during said directional drilling process.
21. The apparatus of Claim 20 wherein said means for reducing wear and tear are a
20 set of teflon pads.